

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 768 427 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

16.04.1997 Bulletin 1997/16

(51) Int. Cl.⁶: **E01C 5/06, B28B 17/00**

(21) Application number: 96116074.4

(22) Date of filing: 08.10.1996

BEST AVAILABLE COPY

(84) Designated Contracting States:

AT CH DE ES FR IT LI

(30) Priority: 12.10.1995 IT CN950015

(71) Applicant: Pavesmac S.r.l.

10024 Peveragno (CN) (IT)

(72) Inventors:

• Bottero, Franco

12025 Dronero (CN) (IT)

• Mauro, Ermanno

12025 Dronero (CN) (IT)

(74) Representative: Lotti, Giorgio et al

c/o Ing. Barzanò & Zanardo Milano S.p.A.

Corso Vittorio Emanuele II, 61

10128 Torino (IT)

(54) A method of obtaining a modular block paving element

(57) To obtain a modular paving block having rough surfaces, a concrete block (10-13) is first provided. Then, the block (10-13) is split in such manner to obtain a modular paving block element (20) having a quadrilateral split rough surface (21). The starting block may be elongate (10), or slab-like (11), or a conventional self-locking concrete block (12,13). The modular paving block elements (20) are laid with their split rough surface (21) facing upwards so as to form a paving.

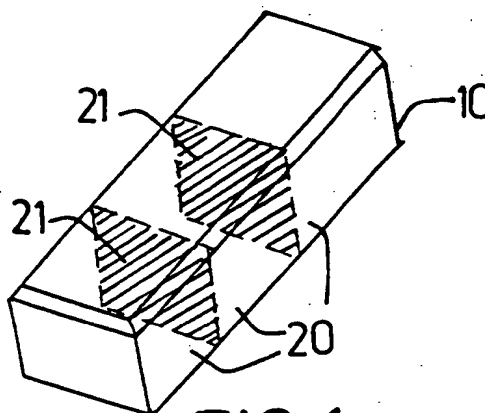


FIG. 1

EP 0 768 427 A1

Description

The present invention refers to a method of obtaining modular blocks for forming paving. This invention further relates to a modular paving block obtained by said method and a paving formed by laying such modular blocks.

Porphyry cubes paving is well known in the art. Porphyry paving is costly as the material has to be quarried and transported from the quarry to the construction site.

Paving formed by self-locking concrete blocks is also well known. This kind of paving is less expensive than porphyry ones. Concrete blocks are made in different shapes, for example in T-shape, double S-shape, goblet-like, etc.. Paving and paving blocks of different colours can be made by varying the concrete components.

A main object of the present invention is to provide a modular block for composing paving having a rough surface, the roughness being maintained over time.

It is another object of the present invention to construct external paving having an aspect similar to conventional porphyry paving, yet at a considerably lower expense.

It is a further object of the present invention to provide blocks in various sizes, colours and thicknesses.

A still further object of this invention is to permit to recycle blocks being scrapped as defective or left over from previously produced lots.

According to a first aspect of the present invention, there is provided a method as claimed in claim 1. According to a second aspect of the present invention, there is provided a paving block as claimed in claim 6 and a paving according to claim 7.

For the understanding of the present invention, reference is made to the following detailed description of various exemplary embodiments considered in combination with the accompanying drawings in which:

FIGS. 1 to 4 schematically illustrate several starting blocks from which the modular paving blocks of this invention are obtained by splitting;

FIG. 5 depicts the conventional laying pattern of blocks forming a porphyry or porphyry-like paving.

With reference initially to FIG. 1, numeral 10 designates a concrete block constituting the starting material for obtaining a block in accordance with the present invention. Starting block 10 is quadrilateral in cross section and is elongate in a direction herein defined longitudinal. In this example, starting block 10 is made of a shape which is ideal for slitting easily in two or more elements along one or more transversal breaking planes. Accordingly, each of the block elements 20 obtained by splitting the starting block 10 has at least one rough face 21 formed by splitting. Split face 21 is substantially quadrilateral and has a rough surface which is ideal for

constituting the surface of a paving similar to conventional porphyry paving. It has been found that, surprisingly, splitting gives a surface having better anti-sliding characteristics as compared to surfaces obtainable by any other known composition or batching of the concrete forming the blocks. The coefficient of friction obtained by splitting is lasting and is higher than that attained by providing artificial roughness in blocks by means of special moulds. The reason for this seems to lie in that splitting of the concrete block also breaks in two the aggregate granules in the breaking plane without detaching them from the split block portions. The split surface of the stone granules is in turn rough, which contributed in increasing the overall roughness of the split surface.

An appreciable aesthetic result can be accomplished by suitably choosing the aggregate composing the starting block 10. The aspect of the split surface can be very similar if not likely to be confused with that of a conventional paving block of natural stone.

FIG. 2 illustrates a variant in which the starting block is a concrete slab 11 adapted to be split following a square pattern after two series of parallel planes perpendicular to each other and the main surface of the slab. Splitting of the slab 11 gives a plurality of elements of substantially parallelepiped or cubic shape. In this case, each element has more than one rough split face 21 having the features above discussed in connection with the example of FIG. 1.

FIG. 3 illustrates a conventional, double T-shaped self-locking concrete paving block 12. Still in accordance with the present invention, also block 12 may be a starting block from which one or more elements 20 having a rough split face can be obtained, as schematically indicated by the phantom lines in FIG. 3. In this way, the block elements of this invention can be advantageously obtained from the recycle of blocks which were scrapped because defective or that were left over from previous lots. The above considerations also apply to the goblet-shaped block 13 shown in FIG. 4.

As shown in FIG. 5, the paving blocks obtained by the method of this invention are well suited for laying according to a conventional circular or arched overlapping pattern of porphyry paving.

It will be appreciated that, in accordance with this invention, it is possible to construct porphyry-like paving using blocks having a wide variety of sizes. In addition, the paving blocks of this invention can be produced anywhere, thereby reducing if not eliminating expenses for quarrying the stone (porphyry) and transporting same to the site of application.

The disclosures in Italian patent application No. IT-CN95A000015 from which this application claims priority, and in the abstract accompanying this application are incorporated herein by reference.

It is to be understood that the embodiments described above are merely exemplary and that persons skilled in the art may make many modifications without departing from the spirit and scope of the inven-

tion. All such modifications and variations are intended to be included within the scope of the invention as defined by the appended claims.

Claims

1. A method of obtaining a modular paving block for forming paving, characterised in comprising the steps of:
 - providing a concrete block (10-13);
 - splitting said block (10-13) in such manner to obtain at least one modular paving block element (20) having a substantially quadrilateral split rough face (21).
2. A method as set forth in claim 1, characterised in that said concrete block (10-13) is split so as to form a modular paving block element (20) of substantially cubic shape.
3. A method as set forth in claim 1, characterised by providing a block (11-13) quadrilateral in cross-section and having an elongate shape in one direction, and splitting said block (11-13) in two or more modular paving block elements (20) along one or more breaking planes substantially perpendicular to said direction.
4. A method as set forth in claim 3, characterised by providing said block (11) is in the form of a slab and splitting said slab block (11) in a plurality of modular paving block elements (20) along two series of parallel breaking planes perpendicular to each other and to the plane of said slab, providing a plurality of modular paving block elements (20) of substantially parallelepiped or cubic shape, each of said elements (20) having at least one substantially quadrilateral rough split face (21).
5. A method as set forth in claim 3, characterised in that said block is a conventional self-locking concrete block (12, 13).
6. A modular paving block element (20) for forming calpestabili surfaces, said paving block element having at least one rough surface (21) for forming said surface, said face being obtained by splitting a cement block in accordance with any of the preceding claims.
7. An external paving formed by the union of a plurality of modular paving block elements (20) according to claim 6, the surface of said paving being obtained by laying said elements (20) with said rough split face (21) upwardly.

BEST AVAILABLE COPY

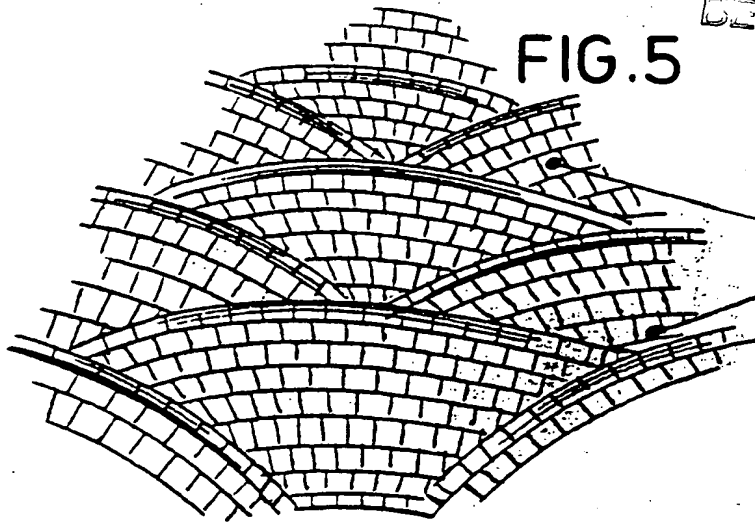


FIG. 5

BEST AVAILABLE COPY

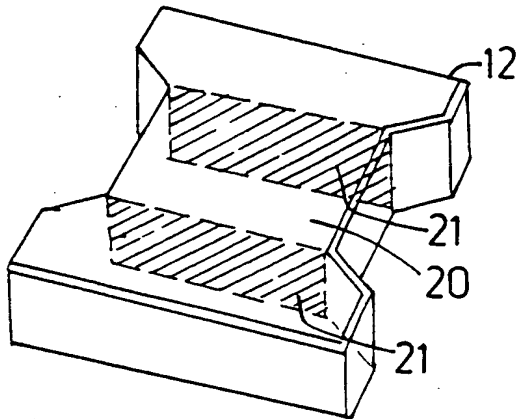
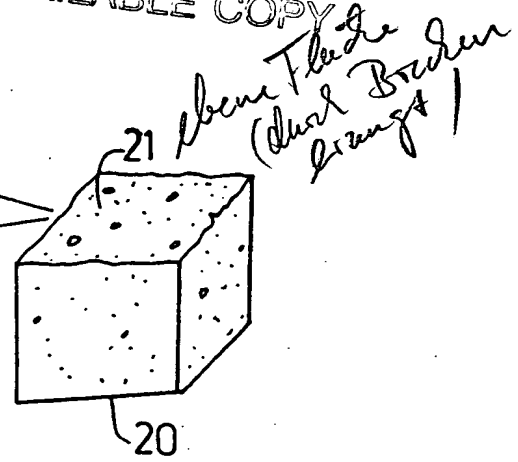


FIG. 3

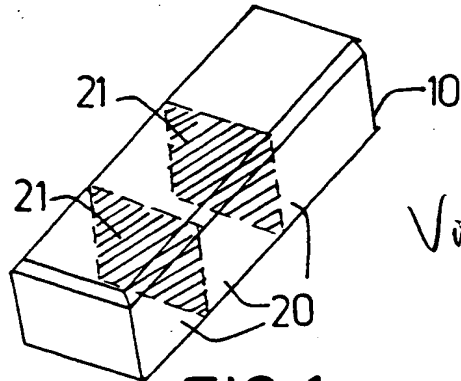


FIG. 1

Vielfachwürfel

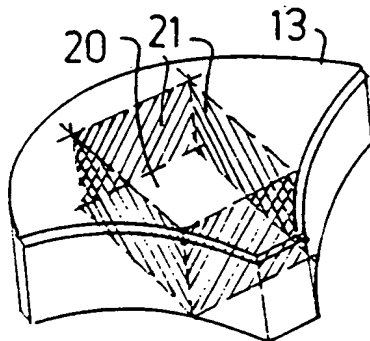


FIG. 4

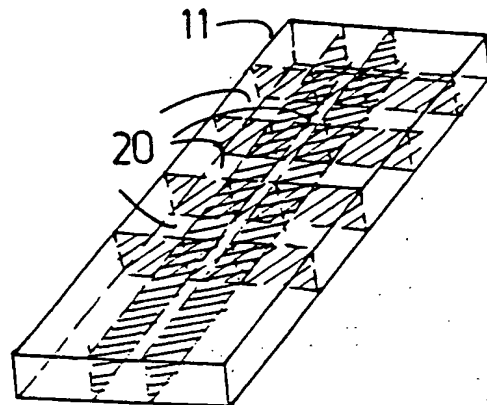


FIG. 2

BEST AVAILABLE COPY

European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 11 6074

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE-U-90 13 618 (GÜLTIG) 6 December 1990 * the whole document *	1-4,6,7	E01C5/06 B28B17/00
X	BE-A-728 991 (DESIR) 1 August 1969 * the whole document *	1,3,6,7	
A	DE-A-27 51 536 (ING BETONBAU GMBH) 23 May 1979 * page 5, line 11 - line 24; figures 1-6 *	5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E01C B28B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 January 1997	Examiner Dijkstra, G
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 01.82 (P04C01)